as the auditory, the large portion of the *trigeminus*, the optic, and olfactory—proceed only from the sensitive columns. 11. That the roots of the mixed cerebral nerves, as the two superior roots of the accessory nerves of Willis, and the pneumogastric, arise in both the motor and sensitive columns. 12. That there are four kinds of crossings in the spinal marrow, *medulla oblongata*, and *pons Varolii*. (*a*) In the spinal marrow, the primary fibres of the motor roots cross in front of the central canal, and the fibres of the sensitive roots cross behind it. These intra-crossings are produced by a portion of the primary fibres of the roots taking their origin in the opposite side. (*b*) In the *medulla oblongata* and *pons Varolii*, the primary fibres of the roots of the cerebral motor nerves, and only the motor portion of the mixed cerebral nerves, intercross at the middle of the motor columns, for the same reason as in the spinal marrow. (*c*) In the *cloison* of Vicq d'Azyr there is an intercrossing from right to left of some of the fibres of the white substance of the *medulla oblongata*, and of the *pons Varolii*. (*d*) There is a crossing of the six walls of the fascieuli of the white substance, and of the *medulla oblongata*, in front of the central canal, known under the name of the *pyramidal decussation*. 13. That the primary fibres of the roots of the nervous plexuses of the pia mater, as also those of all the roots of the accessory nerves of Willis (except the two superior roots), arise from all the periphery of the gray substance. In the plexuses at the surface of the pia mater are found: (*a*) Nerve-cells interposed between the primary nervous fibres. (*b*) Nerve-cells in groups, suspended and floating at the external surface of the nerves of the pia mater. These latter are filled with pigment. 14. That the two olivary bodies are composed of two substances, an external, gray, having convolutions, and an internal, white. The white substance is formed by the irradiation of the primary fibres of the peduncles of these bodies, which take their origin in the motor columns, and by the transverse commissure which traverses the *cloison* of Vicq d'Azyr. 15. That the central canal of the spinal marrow runs along its entire length, and opens into the *calamus scriptorius*. The walls are formed internally by a covering of cylindrical epithelial cells, and externally by a layer of the longitudinal fibres of Clarke, which extend into the epithelial layer of the rhomboidal sinus. In the lumbar region a granular mass is interposed between this fibrillary layer and the epithelial cells. 16. That on each side of the central canal there is a large vein, which successively bifurcates in the region of the *medulla oblongata*, and in that of the medullary cone."—*Moniteur des Hôpitaux*, Oct. 27, 1857.

3. *On the Nerves of the Intestinal Walls.*—G. Meissner looks upon the areolar tissue between the muscular and the mucous coats of the intestines as one of the parts most richly supplied by nerves in the entire body. These nerves, by numerous anastomoses, form a network, the finest twigs of which appear to penetrate the muscle. The primitive fibres for the most part, and perhaps entirely, belong to the kind without any double contour, and are beset by numerous nuclei. They form the finer and thicker branchlets, and are comprised in nucleus-holding sheaths, in numbers varying from five to twenty; whilst the finest branchlets only contain from two to three primitive fibres. The small intestines appear to be the most rich in nerves, but in the walls of the stomach the nerves are very sparing. In the walls of the intestine the number of ganglia in the nervous plexuses is immense, corresponding for the most part with the thickness of the nerve-branches in which they are found; and in the small intestines almost every nerve-branch leads to a ganglion. The largest observed by the author consisted of from thirty to fifty cells; but they ordinarily contained from five to ten, having the ordinary appearance of ganglion cells. In man, pigment granules were often to be seen as contents of the cells, but in the calf they were found to be quite clear and colourless. Many of the cells were bi-polar, and this was evident whenever a single cell was seen inserted in the course of a primitive fibre without a ganglion being formed. Such cells were generally spindle-shaped, and projected themselves at opposite poles into a fibre. Besides bi-polar cells, some were seen from which, either at one side or both poles, two fibres passed close to each other. The ganglia in the stomach are not relatively less than in the intestine. The ganglion cells

in the stomach are larger than those of the intestinal walls. The author describes the best method of examining the nerves and ganglia of those parts, and speaks of the fresh intestine being sufficient, by the aid of acetic acid, for the examination; but inasmuch as this method is tedious, moderately concentrated pyroligneous acid affords the greatest help, which, after some time, makes the areolar tissue very transparent, leaving the nerves and ganglia unaltered. After dilute pyroligneous acid has acted for some days, acetic acid proves very serviceable.—*Brit. and For. Med.-Chir. Review*, Oct., 1857, from *Henle und Pfeuffer's Zeitschrift*, Bd. viii. Heft 2.

4. *On the Function of the Thyroid Body.*—Dr. Peter Martyn communicated to the Royal Society a paper on this subject. After referring to the form, situation, connections, and internal structure of the thyroid body, its large supply of blood, and its capability of sudden alterations of bulk, the author briefly adverts to the unsatisfactory explanations which have been offered as to its function, and then proceeds to state his own views, as follows:—

"The upper part of the trachea, the larynx, and the passage of the fauces and mouth constitute the organ of voice; the two former are the essential or voicing part, as mechanicians call it, that which produces the tone. The larynx and trachea—taking a share in other functions and being associated by juxtaposition and attachment with contiguous organs—are always pervious and open for respiration; lengthen and shorten, fall and rise with the œsophagus in deglutition, and bend and turn with the universal motions of the head and neck.

"To admit of this great mobility and flexibility, a certain structure is necessary. The larynx is a triangular box, inclosing the apparatus of the chordæ vocales; its two cartilaginous sides or alæ, diverging from the front, are not fixed, but free at the back, being completed by soft parts; the trachea is composed of a succession of incomplete cartilaginous hoops or rings lying apart, the back and intervals being made up and the tube completed by soft membrane.

"Now the structure of a wind instrument, such as that of the human voice, requires the opposite properties. It must be rigid, tense, and inflexible. The qualities of the tone will be in exact proportion to these properties. How, then, is the soft, slack, and flexible vocal tube rendered thus rigid, tense, and inflexible, and fit to produce pure tone? The muscles of the larynx, the thyrohyoid and sterno-thyroid, merely raise or lower, or fix it in any position: not lying on, or being parallel to, but diverging from the vocal tube, they cannot affect the object referred to. It appears to me that the thyroid body is provided for this purpose. The act of uttering a tone or of speaking stops the return of the blood from that organ, distends and renders it tense, and from the nature of its attachment round the top of the trachea and on the free sides of the alæ of the larynx, renders them fixed, firm, and tense also. This effect is aided by the aforesaid muscles, the thyroid body being interposed and giving them more advantageous mechanical action. The tension may be in any degree, and on energetic speaking or singing, the increased size of the part and the fulness of the collateral veins may be seen. This is the reason of its large supply and free distribution of blood. An instance of the want of this tension in an instrument may be seen in the bagpipe, where the porte-vent is attached to the chanter or voicing part by a flexible joint or by leather, and the tone is in consequence squeaking and uncertain.

"Besides thus giving rigidity, firmness, and tension to the organ of voice, the thyroid body also acts in another capacity—as a loader. In most musical instruments, loaders are used to render the vibrations slower and longer, and the tone in consequence fuller, louder, and deeper. They compensate for want of size and space, and give to a small instrument, or to a small vibrating or voicing part of an instrument, the power and quality of a large one. The human organ of voice is 8 inches long, and has the same power as, and better quality of tone than, the instrument that most nearly approaches it—the French horn, which is 9 feet, or the 'vox humana' pipe of a moderate-sized organ, which is from 4 to 8 feet long. This economy of size in the human